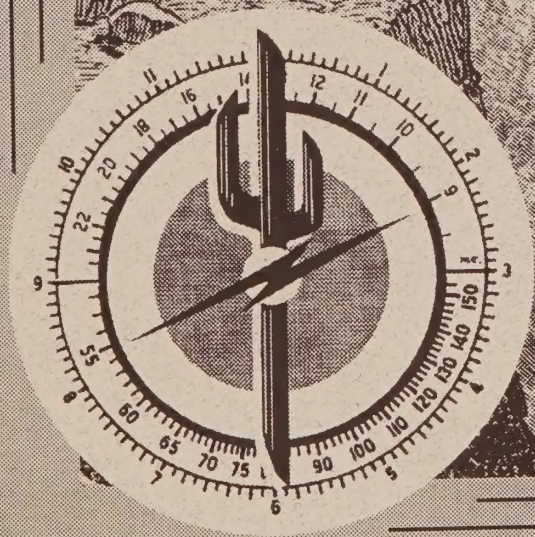
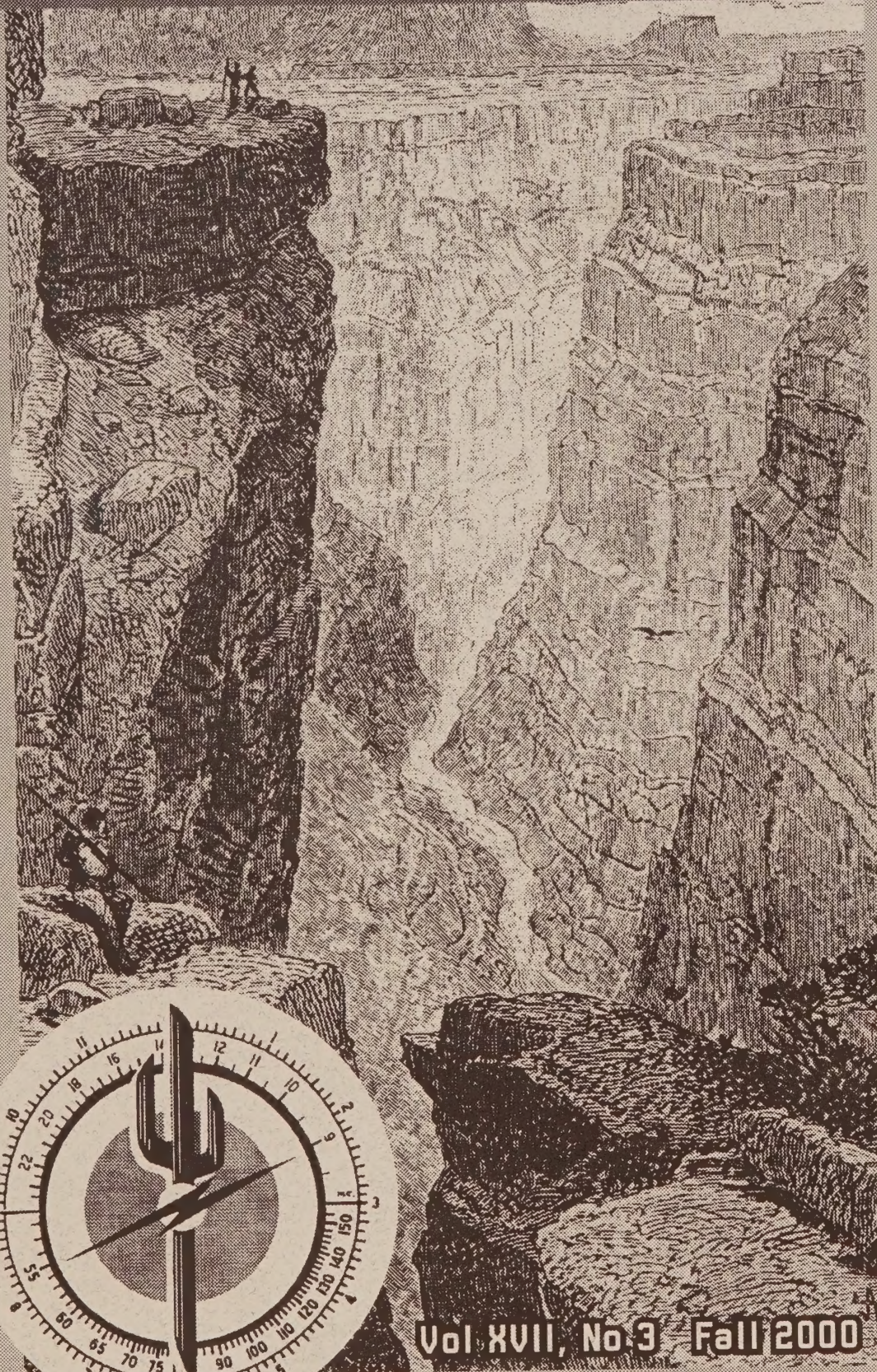


ARIZONA ANTIQUE RADIO CLUB NEWS



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A WORK BY THOMAS
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ARIZONA ANTIQUE RADIO CLUB NEWS

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Arizona Antique Radio Club

The Arizona Antique Radio Club was organized in 1983 for the preservation of the history and artifacts of radio and television, and for the advancement of knowledge and appreciation of radio technology and communication. The Club is a non-profit corporation organized primarily for the mutual assistance of radio devotees and collectors in Arizona. Membership, however, is open to any persons who have an interest in radio and television history, preservation, restoration, and collecting.

Meetings are held from October through May and consist of touring collections, presentations of technical, historical or restoration information, thematic displays of radios and the autobiographical experiences of the members. Our antique radio Swap Meets are scheduled for Spring and Fall meetings. Members of the Board of Directors are elected at the annual business meeting in May. Most meetings are held on Saturdays in the Phoenix and Tucson areas, and when possible, elsewhere within Arizona.

Membership dues are \$18 (individual) or \$20 (family) per calendar year and provide access to all club benefits including the quarterly issues of the *Radio Club News*. Send dues or membership inquiries to: **Arizona Antique Radio Club, 10513 E. Clinton, Scottsdale, AZ, 85259, phone (602) 860-8951.**

The Arizona Antique Radio Club News is the quarterly publication of the Arizona Antique Radio Club, Inc. It is mailed First Class to current members.

Contributions: submission of articles, news items, fiction, photographs and other materials relating to radio history and collecting are greatly appreciated, particularly if they have an Arizona connection. All members are encouraged to broaden their interest in the hobby by sharing their experiences, opinions, knowledge and observations with the club through its publication. Send materials for publication to **Arizona Antique Radio Club, 2025 E. LaJolla Dr., Tempe, Arizona, 85282-5910. Phone is 480-730-6058. Email: lettow@yahoo.com.**

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2000~2001 AARC Schedule of Events

FALL SWAP MEET

Saturday, November 4, 8am;
Antique Electronic Supply, Tempe.
As usual, no one will be allowed to
set up before 8 am.

Our biggest swap meet of the year,
Consignment Auction and Lunch.
We need quality auction items, and
would welcome donated items to
be auctioned for the benefit of the
club.

Swap meet spaces are free to mem-
bers, \$5 for non-members.

Contact: Carl Roberts.

DECEMBER MEETING

Saturday, December 2, 1 pm, home
of Ken and Debbie Krol, 1824
W. Whitton, Phoenix. Whitton is
between Indian School on the north
and Osborne on the south.

California Radios! A meeting fea-
turing those smart little cathedrals,
tombstone and novelty radios pro-
duced by small California manufac-
turers in the 30s. What was style at
a low price is now a hot collector's
item.

Ken is a master at restoration and
may have a few tips to share in that
area as well.

Bring your California radios to add
to the show.

TUCSON SWAP MEET

Saturday, January 27, 2001, 8am;
Dave's Antique Service, 3210 S.
Dodge #11, Tucson.

Swap meet spaces are free to mem-
bers, \$5 for non-members.

RADIO ROUNDUP

Saturday, February 24, details
TBA.

This years theme: Novelty and Pop-
Culture radios of all eras. Novelty
radios have been produced from the
early days to the present.

Now's the time to start thinking
about what you can bring to show.
Remember we're not limiting this to
transistor novelties.

Awards to be given, contest catago-
ries TBA.

SPRING SWAP MEET

Saturday, March 24, Phoenix area,
details TBA

APRIL MEETING

Saturday, April 21, Dave Lambert's
house, Elections, other details TBA

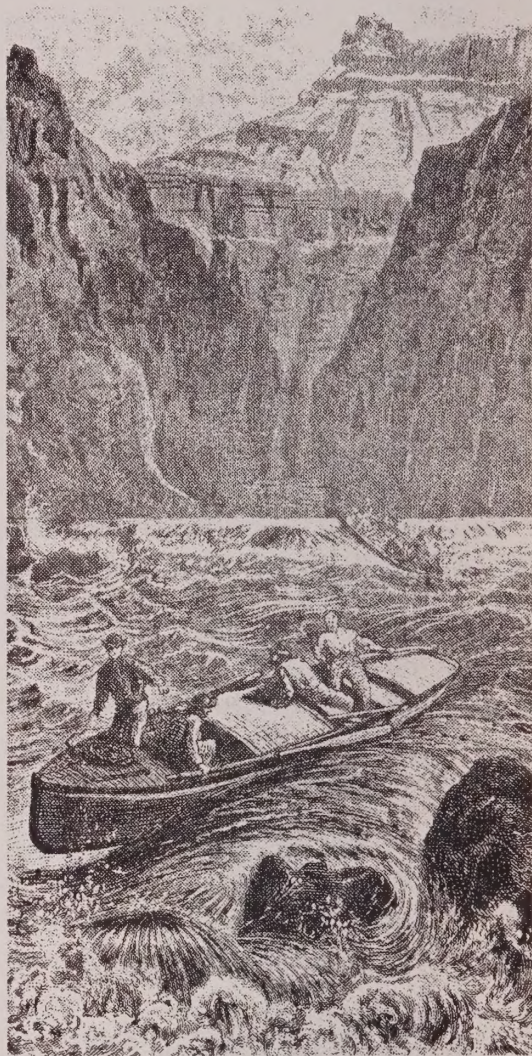
MAY (LAST) MEETING

Saturday, May 19, details TBA

“We Carry a Radio Set and Several Types of Life Preservers”

Historical Use of Radio on the Colorado River through Grand Canyon

by Q.S.O. Abyssus



This exciting article comes to us from the December 1999 issue of The Waiting List, the excellent quarterly publication of the Grand Canyon Private Boaters Association.

It was spotted by Maury Sievers and is reprinted here with the generous permission of the author and of the editor of The Waiting List. For more on the boat club check out www.gcpba.org.

The impetus for this article came about during an on-river conversation with Richardo regarding the appropriateness of group, or personal, means of entertainment via radio and tape or CD-players on river trips. Radio use on the Colorado

River through Grand Canyon currently has no known restrictions. The only thing found in both the 1999 “Colorado River Management Plan, Appendix C, Commercial Operating Requirements, XIII. G.” and the 1996-1997 “Grand Canyon National Park Noncommercial River Trip Regulations, Supplement D. 4.” is: “Please do not operate radios or tape players on the ramp during morning hours; the additional noise is disconcerting to those attempting to conduct trip orientations.” Except to say that the crux of the controversy most likely has to do with volume and choice of station and music, this author will leave the regulations and

appropriateness aspects to others for future articles. The attempt here will be to share some historical tidbits, specifically the use of radios on the River in 1923, 1927, 1937 and 1940. There may be other early instances of which this writer is unaware.

According to the *World Book Encyclopedia* (1960 edition; not that up-to-date, but it's the edition we have at home): in 1895 Guglielmo Marconi sent radio signals more than a mile; in 1920 stations KDKA of Pittsburgh and WWJ of Detroit made the first regular broadcasts; in 1923 Frank Conrad pioneered short-wave radio; and also in 1923 the first permanent station hookup, or network, was established, later becoming NBC in 1926.

So, you can see that in 1923 when Claude H. Birdseye, Chief Topographic Engineer of the USGS, led his river trip through Grand Canyon, radio technology and application were in the formative years. According to Lewis R. Freeman ("Surveying the Grand Canyon of the Colorado: An Account of the 1923 Boating Expedition of the United States Geological Survey," *National Geographic*, May, 1924): "A receiving set had been included in the outfit for two reasons: on the chance that it might bring us warning in the event of a flood descending from above and as a possible source of entertainment. The publication of an article in a prominent radio magazine the week we left Flagstaff provided a new line of interest. In this it was stated quite definitely that it was impossible to receive radio messages in any deep,

sheer-walled natural depression. As we were about to enter the deepest gorge of this kind in the world, an unparalleled opportunity would be offered to put this theory to the test."

The party left Flagstaff on July 18, 1923. (So far, the author has not successfully located the article or the title of the "prominent radio magazine" and requests any information that may be of assistance.) To show results of this experiment, excerpts from Freeman's article (LRF) and Richard E. Westwood's *Rough Water Man* (REW) follow.

We Carry A Radio Set And Several Types Of Life Preservers

LRF, P.480-481: "In spite of the interference of daily thunderstorms and terrific heat radiation from the Painted Desert, our set gave good service from the day it was set up at Lee's Ferry. The broadcastings of KHJ of a Los Angeles newspaper always came in most clearly, but on several occasions we had stations as far east as Chicago. We had only four earpieces, but an amplifier improvised from a baking powder can and a tin funnel offered entertainment for a wider audience on occasion."

REW, P. 131: "The survey party spent from July 20 to 31 extending the topographic surveys ... in the area around Lee's Ferry ... The men set up a radio and heard a concert from Los Angeles. [Raymond] Moore fashioned a loudspeaker out of a funnel and a tin baking-powder can that made the concert quite audible

forty feet away. Freeman noted that the radio continued to function right through a violent thunderstorm. He said, 'Static would crash in the ears simultaneously with the flash of lightening, but hardly a word or a note would be lost.'

REW, P. 135: "They camped for the night on the right shore above Badger Creek Rapid ... They strung the aerial and tuned in the radio ... almost immediately ... they learned of President Warren G. Harding's continued illness. He had fallen sick in Seattle upon return from a trip to Alaska. The doctors suspected food poisoning, and the President was taken by train to a hospital in San Francisco. 'Uncle John,' a Los Angeles radio commentator, promised to send a special message to the Colorado Canyon party the following night."

A Tragic Radio Message

LRF, P.497, 499: "Radio had come in strongly at Badger Creek, but it remained for the 1,000-foot-deep section at Soap Creek to furnish conclusive proof of the fallacy of the theory that so profound a natural depression would prevent radio communication with the outside world. Station KHJ had warned us the previous night that it was planning to broadcast special messages to us on the evening of August 2. That was the night of our arrival at Soap Creek.

"In preparation for the gala occasion, the aerial was carefully set up, with one end high on the side of a cliff, and orientated on Los Angeles. KHJ came in strong promptly at 9 o'clock, Mountain time, with little

interference either from static or from the crashing roar of the near-by rapid. The lightning of distant thunderstorms was jazzing up the purple wedge of sky between the up-river cliffs, but, strangely enough, with scarcely any reaction on the instrument.

"Baseball scores had come in and the daily grist of news was halfway through, when there came a sudden break, followed by a brief space of charged silence.

"When the announcer resumed it was to state with deep emotion that news had just been received of the death of President Harding in San Francisco. This word winged a dozen times or more during the next hour, once directly addressed to the 'engineers braving the rapids of the Colorado.' We had received our special message, though not the one expected."

REW, P137: "They found an abundance of driftwood on the right bank and decided to camp there, 100 yards above the head of the [Soap Creek] rapid ... That evening the men set up the radio and almost immediately learned of the death of President Harding, just forty-five minutes after it occurred. The doctors now said he had died of pneumonia, although an autopsy was never performed. 'Uncle John' repeated that message eight or ten times during the evening and once said he was directly addressing 'that heroic band of engineers braving death in the rapids of the Colorado,' or words to that effect. The radio came in plain, though faint."



Boatman Emery Kolb, returning after his 1911/12 moviemaking trip with brother Ellsworth, took this photograph of the 1923 USGS radio outfit manned by Claude Birdseye and probably boatman Elwyn Blake at the Devils Slide Camp. (NAU Cline Library Special Collections and Archives, NAU.PH.568-5239. Emery Kolb Collection.)

Radio Worked Perfectly At Depth Of A Mile

LRF, P.499: "The first news of the President's death was received at about 8:15, Pacific time — perhaps forty-five minutes after the tragic event. Not one in ten thousand of the city dwellers of the country could have had the news at so early a moment.

Colonel Birdseye announced at once that a day of rest would be taken by the expedition out of respect to the

memory of the President. The exact date would be decided later, when the day of the funeral was learned over the radio.

"Almost unconsciously the radio had come to be accepted as a regular functioning unit of the outfit. Although occasionally affected by heat and local electrical storms, it continued to work just as well when the gorge of the Grand Canyon had deepened to a mile as it did the night

it brought us the momentous message in the camp at Soap Creek Rapid. That it failed to pick up the many warnings of impending flood that were broadcast to us was not the fault of the outfit. It was enjoying a temporary rest while fresh batteries were being sent in."

LRF, P.508: "Radio came in as clearly as ever, in spite of the fact that the rim of the Kaibab now towered more than 2,000 feet above us. There was a Sunday evening concert of real quality over KHJ; also an announcement that the date of President Harding's funeral had been fixed for the 10th."

REW, P.139-140: "They camped on the sandbar where they had eaten lunch [below Soap Creek Rapid on the right] ... That evening they heard on the radio that President Warren G. Harding's funeral was set for Friday, August 10. They also heard a detailed description of his funeral cortege ... Elwyn [Blake] chuckled when he heard a letter from [Lewis R.] Freeman read over the radio. In it he said Blake had special instructions not to lose the cook."

REW, P 142-143: "[T]hey ran 21 Mile Rapid, ran farther on, and pitched camp on a rocky shore on the right bank ... LaRue took a movie by flashlight of the 'gang' around the receiving set. Then everyone listened to the radio. They had suspended its 200-foot aerial from the canyon wall by a cord about 300 feet long. They heard 'Uncle John's' words regarding the funeral train carrying the body of President Harding through Wyoming. The train had been delayed fifteen

minutes because of a broken rail."

REW, P.151: "They made camp on the right side above Little Nankoweap Wash ... For the first time they did not get KHJ (Los Angeles) on the radio. They did get the Deseret News of Salt Lake City (KZN). It came in better than at anytime since leaving Lee's Ferry. 'Barney Google' came in strong and clear."

REW, P.153-154: "The team reached the Little Colorado about 3:30 P.M. but, with no campsite to be seen there, they went on a couple of miles and caught up with Kolb at a suitable campsite ... They had good radio reception in spite of the great canyon depth."

REW, P.157: [Camp at the head of Hance Rapids.] "In the evening LaRue and Moore listened to the radio until 10 P.M."

REW, P.164: "Birdseye decided that they should camp on ... the only sandbar of any size seen during the day ... The spot was 1,200 feet below Clear Creek on the left side. Two of the men stretched the radio aerial from a seventy-five-foot-high shelf of rock down to the campsite. While putting it up one of them loosened an eighty-pound rock which fell to the wet sand within a few feet of where Elwyn was walking. Colonel Birdseye, LaRue, Moore, and Burchard played bridge that evening. Kolb and Elwyn tuned in the radio. Reception was clear but faint, so Elwyn went to bed early."

REW, P.167: "The party camped at the mouth of Pipe Creek ... They set up the radio and tuned in station KHJ to hear Freeman's report of the

trip. Freeman said, "We shall be more heavily loaded than before — not just what one would prefer on a falling river. The latter has but little over half the flow it had when we arrived at the suspension bridge five days ago."

REW, P168: "The surveyors carried the line to a point opposite Trinity Creek, where they intended to camp. A dust storm came up and blew sand into their eyes and ears, so they pulled across the river and landed a mile below ... Radio reception was better than ever."

REW, P172: [Camp at Hermit Rapids.] "During the evening Shirtliff of Fox News and LaRue each took flashlight movies of the radio set in action. In doing so they set the flare too near Birdseye and Stabler, and the two were almost overcome by the fumes."

REW, P173-174: "From Boucher the party made a run to the head of Crystal Rapid ... They made camp there even though it was only 3:30 PM. because of threatening rain ... Sometime during the night they were awakened by thunder and flashes of lightning. Soon after rain and wind struck ... By morning the rain had almost stopped ... After finding all the equipment they could, the men took a couple of hours to dry out beds and clean up the gear. The radio antenna proved to be a good clothesline."

REW, P185: "After lunch they made the two-mile run to Tapeats Creek ... Some of them washed clothes while others set up the radio ... for the first time since August 30. Station KHJ came in clear but with some fading out. They heard for the

first time that serious trouble was imminent between England and Italy, that a disastrous earthquake had hit Japan, and that Washington had won a ball game by a decisive score."

REW, P188-189: "The party made camp just above Kanab Creek on the opposite side of the river ... When the survey crew tried the radio, they found it would not work ... They took the radio apart to see why ... and found one unsoldered joint in the wiring and one battery that was badly damaged. Then they discovered that their soldering iron was missing."

REW, P191: [At Havasu Creek.] "On September 14 Roger Birdseye, Charles Fiske, Shirley, the interpreter, and Frank Word the original cook, left at 9:00 A.M. They packed out maps, notes, film, and the damaged radio, which was to be repaired and brought back in at Diamond Creek."

LRF, P524-525: "The radio set was sent out from Havasu for repairs, to be brought back to us at Diamond Creek, 70 miles below."

Flood Sweeps Down: Warning Not Received

"Pushing off from Havasu with deeply loaded boats on the morning of September 15, we came, after three and a half days, to the head of Lava Falls. The skies had been clear most of the way, but violent wind squalls indicated that equinoctial storms were gathering to break upon the plateau region behind us.

"If the radio set had been with us we would have received numerous messages broadcast from several stations in response to wires from

Washington advising us that one of the heaviest storms of recent years had broken upon the basin of the Little Colorado and warning us to be on the lookout for the waters of a very heavy flood.

"If such warnings had been received, we would have selected a broad open section, with ample room to back away from a rise, and waited for the flood to pass. Unwarned, we were surprised at a time and place far from favorable - twilight on the brink of Lava Falls."

REW, P204: "Roger and Fiske brought the supplies in to the mouth of Diamond Creek ... Fiske immediately rode out to Peach Springs with telegrams to the families of each member of the party. He also sent telegrams to Kingman, Los Angeles, and Washington. D.C., papers reporting the safe arrival of the party. The telegram in the Los Angeles Times was broadcast that evening. Roger had brought back their radio, fully repaired, so the river party heard the telegram read at 8:00 PM."

REW, P205: [Same camp.] "The men enjoyed listening to the radio in the evening."

REW, P209: "The party decided to camp at the head of the [Gneiss Canyon] rapid ... At this point the gorge was very narrow, the sheer walls rising over 2,000 feet. Still, radio stations KHJ of Los Angeles and KSL of Salt Lake City came in quite clear."

REW, P213: "Their camp was on the right bank nineteen miles below Diamond Creek. For the first time in

many nights there were no rapids near camp. The absence of the familiar roar seemed strange to Elwyn. That evening they tuned in station KFFU of Colorado Springs for the first time. They listened to the results of the first two games of the World Series broadcast over station KHJ.

REW, P219: "[C]amped at the mouth of Grand Wash ... [s]upper was late but well worth waiting for. Felix [Kominsky] prepared roast quail, duck soup, peas with curry gravy, and hot biscuits. Listening to the radio that evening they learned that the Yankees [who beat the Giants four games to two] had won the world series."

1927: Radios And A Search By Air

From David Lavender's *River Runners of the Grand Canyon* (DL) comes the following information regarding 1927 river radio usage.

In August, 1927 Clyde Eddy successfully completed his run of "The World's Most Dangerous River." He was back again that same year joining the "Bride/Pride of the Colorado" film trip. Also along were: E.C. LaRue from the 1923 Birdseye Expedition; Frank Dodge from the '23 trip and the upcoming 1937 Carnegie-Cal Tech trip; and Owen Clark of the upcoming '37 trip. A request came from the Pathé-Bray company for Eddy to assist in the search for the river party "lost" in Glen Canyon.

DL, P71: "On November 24 he [Eddy] started north from Flagstaff with a truckload of the movie company's equipment. His arrival at

Gable's Camp, a radio broadcasting station that Gilbert Gable, vice-president of the Bray Company, had set up on the desert thirty miles south of Lee's Ferry, was an excuse for a special bulletin to the *New York Times*. By then Eddy realized he was being used as part of a publicity stunt, but never mind, he had made an impact, he was the one who had been summoned ... A publicist was along [on the river trip], of course, Devergne Barber, a six-foot-four-inch reporter for the *New York Times* and staff writer for *Liberty* magazine. Barber's technical right hand was army sergeant Vernon T. Herrick, operator of the flotilla's battery-powered radio. The idea was for Barber to write daily reports on the expedition's progress that Herrick would send to Gable's Camp. From there the material would be relayed to a station in Salt Lake City and become part of the nation's news.

DL, P71: "Though at one point [in Cataract Canyon] Herrick climbed a talus slope to a tree and hung an antenna sixty feet above the ground, he could not contact anyone with the radio. Now and then, however, they were able to receive messages from Gable's, one of which ordered, 'Keep boats clean so they will photograph against dark water' ... On November 26 (by then Eddy was at Lees Ferry), Herrick picked up another message. 'Your continued silence causing alarm. Show immediately red flare if in danger, white flare if okay. Help on the way.'"

DL, P72: An Army search plane "passed over Lees Ferry just as the

expedition's boats were landing there. Everyone signaled frantically but the pilot (he had a navigator and radio operator with him) decided that the people down below, excited at seeing a rare airplane, were just waving and that the boats were part of the ferry station's equipment. On they flew, low, buffeted by headwinds at Navajo Mountain, to the junction of the Green and Colorado, more than two hundred miles from Lees Ferry. No boats. Then back to Gable's, where they blew a tire as they landed. Gilbert Gable turned the fruitless errand into an epic. Never before, he exclaimed over the air, had a plane flown up the river at so low an altitude — 'one of the most perilous flights in aviation history.' (By then Lindbergh's crossing of the Atlantic was three years old.)"

DL, P73: "Lugging the heavy radio and its batteries around the rapids was an ordeal, but it was also a relief to be able to hunker around it on long evenings and listen to distant stations. One night the principals of the coming romance went to Gable's to boost the canyon party's morale by praising their efforts over the air ... The encouragement they offered the boaters remained unheard. Static was bad that night."

"There were accidents. At Sheer Wall the cook washed overboard but retrieved. (Barber, reporting over the radio by Gable's, waxed facetious: 'John is a good cook and we would hate to lose him.') The radio boat turned over at mile 21.5, but watertight compartments saved the apparatus."



Robert P. Sharp with radio set-up at the South Rim, November 1937. (NAU Special Collections and Archives, NAU PH 94.27.178, Carnegie-CalTech Collection.)

1937: Football Scores and Japan Goes To War

The 1937 geological mapping expedition with members from the Carnegie Institution of Washington and the California Institute of Technology, commonly called the Carnegie-Cal Tech Expedition, also brought along a radio. Frank Dodge and Owen Clark are back and are joined by boatman Merrill F. Spencer. Geologists include Ian Campbell, John T. Stark, John H. Maxson, and Robert P. Sharp. GCNP naturalist Eddie McKee hikes in at the Bass Trail and Buzz Holmstrom, on the first solo trip through Grand Canyon, catches the party at Diamond Creek. The following excerpts are from Bob Sharp's diaries,

what he often notes as "Chronicles," located at the Cline Library Special Collections and Archives Department, MS.#293, Carnegie-Cal Tech Collection.

Oct. 11: "We camped at about 5 p.m. at the foot of the Badger Creek rapids. Maxson was able to exchange messages for the first time with the Grand Canyon. At Lees Ferry he had been able to hear them, but unable to reach them in return."

Oct. 12: "... made camp at the foot of the Soap Creek Rapid. Maxson was again able to contact the Grand Canyon and exchanged messages with them. They reported fair weather in Utah and Arizona."

Oct. 13: "We moved downstream

[of what they think to be 25 mile rapids] through a short riffle and made camp in a small reentrant and cove ... Maxson set up the radio but was unable to contact the Canyon station. About 6:05 pm he decided the location was bad — moved into the open and almost immediately contacted the Canyon group. They gave us weather and river conditions and general news of interest.”

Oct. 14: “We camped at 4 pm at mile 38. Maxson was again able to contact the Canyon by radio and got news and weather report.”

Oct. 16: “...camp at mouth of Little Nankoweap Creek. to study Algonkian sediments ... I was told to contact KNDO at the South Rim by radio and got news reports etc. We also got football scores. Yale 15 Army 9, Harvard 0 Navy 0, Northwestern 14 Purdue 7, Carnegie Tech 9 Notre Dame 7 were some of the outstanding scores.”

Oct. 17: “...mouth of Lava Canyon where we camped on south side of river ... I was able to contact KNDO at the South Rim by radio and exchange messages ... McKee reported over the radio that this (Lava Creek.) was one of the famous old roads (trails) cross the river in the early days. The trail ran up Lava Creek and then up Chuar Creek, near Temple Butte, Walcotts type locality for his Devonian Temple Butte ls. He also mentioned the mining drifts near here, one of which we can see clearly cross the river on the north side.”

Oct. 18: [same camp] “Poor contact by radio with KNDO because

of static. Got news and weather report.”

Oct. 20: “... south side of the river down to Mineral Canyon ... Frank Dodge came over and ferried us cross the river to camp on the north bank — where we had a good camp in a rock niche. I was successful in contacting the Canyon by radio. Learned that Mussolini had agreed to remove soldiers and volunteers from Spain.”

Oct. 21: [same camp] “I was successful in contacting KNDO by radio; good reception at both ends. Reported letters and registered package for Stark.”

Oct. 22: “... made camp on south side opposite mouth of Vishnu Canyon ... I was able to contact the Canyon by radio - good reception at both ends. River seems to be falling - radio reports 8140 - gave 9040 sec/ft last night.”

Oct. 23: [same camp] “I was successful in contacting the Canyon by radio. Football scores. Dartmouth 20 Harvard 2, Brown 7 Columbia 6, Ohio State 7 Northwestern 0, Brown 7 Columbia 6, Yale 9 Cornell 0, Fordham 7 T.C.U. 6, 3rd qtr Stanford 13 Washington 6, 3rd quarter Washington State 3 UCLA 0, Pitt 21 Wisconsin 0 were some of the outstanding scores.”

Oct. 24: “We made camp a little west of Lone Tree Canyon on the north side ... Campbell, Maxson and I went over to Clear Creek and took a bath. Clear Creek is a fine clear creek coming in from the north. I was successful in contacting KNDO by radio — someone was using an

electric razor at the other end — we had some difficulties — but managed to get our messages cross.

Oct. 25: [same camp] "Contacted canyon by radio, got news etc."

Oct. 28: "Decided to camp just about opposite Trinity Creek which comes in from the north ... Contacted KNDO successfully. Learned that Kitty Campbell reached top at about 2 pm making very good time. She gave us the time over the radio and exchanged messages with Ian and Johnny Maxson."

Oct. 29: [same camp] "Good contact with KNDO."

Oct. 30: "I went down to 94 Mile Canyon. Came back to place opposite ripple-marks on north side where camp was being set up ... Contacted KNDO by radio - got a few football scores."

Oct. 31: "Boatmen ran Boucher rapids and made camp at foot. Raining and thundering during afternoon and evening - windy ... Bad night on radio - only about 5 minutes contact."

Nov. 1: ... arrived at mouth of Crystal Creek about 10 am. Made camp to do map work ... Poor night on radio. J.H. Maxson took over and talked too much."

Nov. 2: [same camp] "Men in camp had not been able to contact KNDO by radio - shall try again tomorrow night."

Nov. 3: "At our camp found inscription on the rock. Geo. W. Parkins - Washington D.C., 1903. Poor contact with KNDO but were able to learn that McKee will join us here either tomorrow (Friday) or Saturday."

Nov. 6: "Left camp below mouth of Hotauta Canyon ... Made radio contact with KNDO at 7:30 this morning, instead of this evening."

Nov. 7: "Maxson got KNDO on radio - got football scores - Eddie McKee talked to his family."

Nov. 8: "Made camp about 4 pm near Fossil Creek ... I was able to contact KNDO. They reported that they had coldest night of the season, so far, on south rim, 23° F. with flurries of snow and snow on the ground on the north rim."

Nov. 9: "Made camp at head of Dubendorf [sic] - will see about them tomorrow. Had good contact with KNDO."

Nov. 11: [11/10/37: "made camp at bottom Tapeats Creek about 4:15 pm"] "Had radio contact with KNDO this morning at 8 am., good contact."

Nov. 12: "Rest looked over the Kanab Creek Rapids and made camp above the rapids. McKee and I returned about 6 pm. Found that by radio the report had come that a lone man had arrived by boat from Green River."

Nov. 13: "We went on downstream and made camp about 1 mile upstream from Havasupai Creek. Had an excellent contact on radio with KNDO - learned that Buzz Holmstrom had left Green River by boat, alone on Oct 4, was in Lee's Ferry last Sunday, and arrived at Phantom on Friday. Expects to leave Phantom tomorrow morning. Got football scores and news that river seems to be rising now at 7020 sec ft."

Nov. 14: [Gateway Creek.] "Maxson ran radio, had good contact with KNDO. No news.

Nov. 15: "... came to Lava Falls ... Decided would have to line rapids - portaged things to foot - made camp at head of rapids ... Fair contact on radio. Had card from Mom."

Nov. 16: "Made camp at about 191 Mile Point. Had good contact with KNDO, though we almost missed them as all our watches were slow. Spud Bill was back - made a bet with him on the Yale-Harvard game for this coming Saturday. Hamilton plans to take a portable set with him to Toroweap and will try to contact us too. - moon at $\frac{3}{4}$ full. Canyon is opening up here. River 7010 sec ft. Temp on So. Rim 24 minimum - 48 maximum."

Nov. 17: "Made camp about 4:30 pm in Granite Park at about mile 208 $\frac{1}{2}$ + ... Had good contact on radio with KNDO - lots of news - Learned that Nanking is expected to fall to the Japanese very soon now. Weather cloudy and overcast stormy but warmer tonight - river falling - now 6600 sec ft."

Nov. 18: [same camp.] "... had very good contact with KNDO - Also managed to exchange a message or two with portable set #1 at Toroweap Valley - only fair contact with them."

Nov. 19: "Made camp about 221 Mile Pt. Had good contact with KNDO. Nation $\frac{1}{3}$ covered with snow - 2" in Cheyenne, Wyoming."

Nov. 20: "Buzz caught us at 11:15 am at mouth of Diamond Creek ... Sent in a message to Buzz's mother

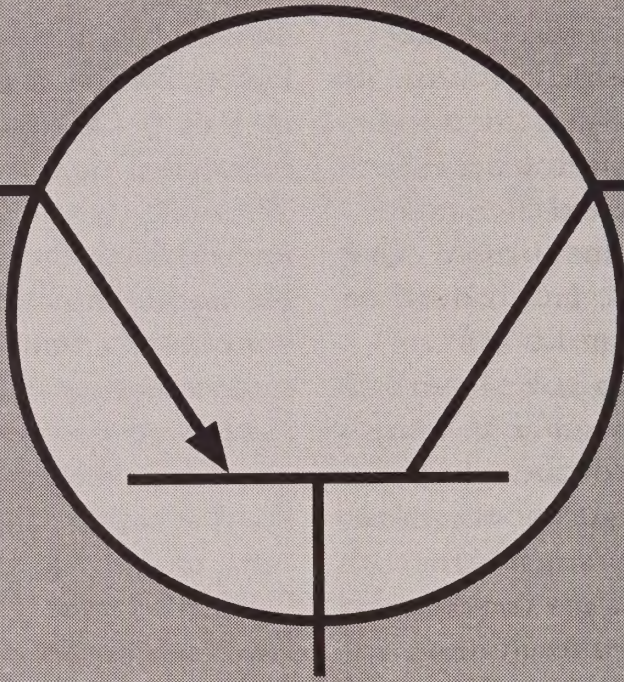
over KNDO. He expects to get to Pierce's Ferry in 2 days and to Boulder in 5 or 6 - He is broke and hopes to catch a ride up to Green River, Wyoming, where his car and trailer on which he brought his boat are. He had a month's vacation; now gone nearly two months ... made camp at bottom of Travertine Rapids. Had good contact with KNDO - gave them message from Holmstrom. Football scores worthy of note Harvard 13 Yale 6, Calif 13 Stanford 0, Notre Dame 7 Northwestern 0, Princeton 26 Navy 6."

Nov. 21: "Had a good contact with KNDO after standing by for a station to the north to stand by. Sent one message to Mom. Spud says - Pittsburgh seems to have the call on the Rose Bowl with Calif. - not final as yet. River down a bit about to 6300."

Nov. 22: "Worked on down and made camp at 237 Mile Rapids .. Fairly good contact with KNDO - sent out message to have cars meet us at Pierce's Ferry or Boulder City on Friday - Nov. 26th."

Nov. 23: "About 4:30 pm made camp short of 243 mile pt. by a bit. Camp on a fine bar near a wide eddy in the river. Had fair contact with KNDO - though they faded out."

Nov. 24: "Made camp at mouth of Reference Point Canyon ... Had excellent contact with KNDO - one of the best. Japan still marches on in China ." ♪



Arthur P. Stern and the First Transistor Radio

by

Albert M. Sekela

Arthur Stern was born in Budapest, Hungary in 1925. He studied law in Budapest from 1943 to 1944. In 1944 he was in the Bergen-Belsen concentration camp in Germany. He obtained his engineering degree (Dipl. Ing.) in Switzerland in 1948 from the Swiss Federal Institute of Technology in Zurich. He came to the United States in 1951 and joined the General Electric Electronics Laboratory in Syracuse, where he participated in development of the

US color television system. Mr. Stern had a long and distinguished career in management of several defense research institutions, and served as president of the IEEE in 1975. An interview with him conducted by William Aspray in 1993 is available at:

www.ieee.org/organizations/history_center/oral_histories/transcripts/stern.html

Mr. Stern responded by letter published in the May issue of the IEEE

house organ, *THE INSTITUTE*, to an item by IEEE historian F. Nebeker regarding availability of commercial transistors printed in the September 1999 issue. I requested and obtained permission to reprint his letter and his original article regarding development of the first transistor broadcast receiver printed in the December 1954 issue of *Electrical Engineering*, the official journal of the A.I.E.E. (a parent organization of the IEEE).

This letter offers a fascinating glimpse into the history of the development of broadcast receivers as well as the turning point in Mr. Stern's career. The 1954 technical article is a roadmap for development of the supporting technologies needed to permit commercialization of the transistor broadcast receiver and later the transistor television receiver. Senior US managers of the day allowed the Japanese to use this map to take control of the commercial electronics products market.

The following letter is the original, and was edited for publication:

Arthur P. Stern
Beverly Hills, CA

October 21, 1999

Mr. Richard Wallerstein, Editor
THE INSTITUTE
Piscataway, NJ

Dear Mr. Wallerstein:

Having been deeply involved in the early history of transistor radios, I don't agree with some statements

of Mr. Nebeker, Senior Research Historian, IEEE History Center, in the September 1999 issue of *THE INSTITUTE*, under "September and October in IEEE History". Here are my recollections:

In December 1952, in the cafeteria of General Electric's Electronics Park in Syracuse, NY, my boss's boss, Don Arsem, a section manager in the Electronics Laboratory (=E-Lab), joined me for lunch to get to know me, one of his young engineers who came to GE from Europe about a year earlier. At that time, I was member of a group that worked on perfecting the country's forthcoming color TV system. After a friendly chat he asked me whether I was aware of any R&D opportunities that were not being pursued by the E-Lab. I wasn't prepared for such a serious question and, a bit embarrassed, responded casually and somewhat carelessly that it was high time to start development of a transistor radio.

Next day Arsem phoned and asked that I come to an urgent meeting with Dr. Lloyd DeVore, then manager of the E-Lab and my immediate superior, Irv Abrahams. In that meeting, Dr. DeVore and Arsem asked me out of the blue to lead a high-priority team to develop a transistor radio and to provide a plan and budget. I was flabbergasted ... at age 27 I wasn't quite sure whether I was awake or dreaming.

Overcoming my initial reluctance (at that time I was rather "anti-management"!) I decided to comply and within days assembled a team that included engineers Jack Raper,

Charlie Aldridge and technician help. The task was ambitious: (1) Usable transistors were scarce, only experimental (and some sample production) units were available, hardly any worked above the audio range; (2) the transistor as a circuit element was unexplored; we had to develop theory and practice of tunable amplifiers, frequency converters, high selectivity IF amplifiers, automatic gain control, etc., etc.; (3) a strike of G.E. workers erupted and lasted 2 months ... we respected picket lines (and were also afraid of being caught in a strike that became at times violent). We worked in the basement of the home of my boss, Irv Abrahams. We started with point contact transistors, then switched to germanium and some silicon junction units obtained from a variety of sources. Soon we became aware of a powerful competing team at RCA Research Labs, Princeton, NJ, headed by Lon Barton, a capable and very knowledgeable engineering leader. The competition gave us a tremendous incentive to win. We had a really exciting time!

To shorten the story, we won the race and demonstrated a "full spec" superhet radio in September 1953 to G.E.'s management: W.R.G. Baker, czar of G.E.'s electronics business (and I.R.E. President, 1947), and the managers of G.E.'s product departments, including the then very important Radio Receiver Department, responsible for G.E.'s thriving radio business. Soon our radio was also shown to Ralph Cordiner, G.E.'s CEO. The radio used a combination of germanium and silicon transis-

tors, most fabricated by John Saby's device group in the E-Lab because, despite unrelenting search, no satisfactory transistors were available from vendors.

We published the first paper on transistor radios ("Transistor AM Broadcast Receivers", by Arthur P. Stern and John A.A. Raper) in the Convention Record of the I.R.E. (March 22-25, 1954), Vol. 7, p.8-14. A revised version (entitled "Transistor Broadcast Receivers") was published in December 1954 in *Electrical Engineering*, the official journal of A.I.E.E., pp. 1107-1112 (I.R.E. and A.I.E.E. merged in 1964 to become I.E.E.E.) and was reprinted in various overseas magazines.

Mr. Nebeker states: "in 1953 Texas Instruments succeeded in mass producing a silicon transistor (earlier mass produced transistors were of germanium)." I respectfully disagree: In 1953 we left no stone unturned in searching for "mass-produced" transistors, i.e., ones with reasonably uniform characteristics, from all possible sources, including Texas Instruments (with the help of Pat Haggerty, later CEO and I.R.E. President, 1962, who certainly was influential with his organization) but didn't succeed. No mass produced transistors were available from anywhere, certainly not ones usable at "high frequencies" well above the audio band, not of germanium and even less of silicon.

The rest of the story is sad. While we at G.E.'s E-Lab won the technical and publication race, G.E.'s powerful Radio Receiver Department decided

that transistors were too immature, unreliable and risky to be used in a G.E. product. Within a very few years U.S. manufacturers lost the radio (and later the TV) market to Japanese companies who were willing to bet on transistors. G.E.'s Radio Receiver Department soon ceased to exist.

Very truly yours,

Arthur P. Stern,
IEEE President, 1975

The following are the introductory paragraphs of the 1954 *Electrical Engineering* article mentioned in Stern's letter:

TRANSISTOR BROADCAST RECEIVERS

by A.P. Stern and J.A. Raper

During the past few years, the transistor has emerged from the laboratory and taken its place on the ever-increasing list of components available to the electronic engineer. The transistor is now accepted as an important and reliable tool and has been successfully applied to a number of commercial products.

Broadcast, receivers and, in particular, portable receivers can benefit very materially from "transistorization". Transistors offer the possibilities of decreased size and weight, considerably more efficient battery operation, greater mechanical stability and indefinite life, to name a few.

Many engineers unfamiliar with transistors feel that "transistorization" of a broadcast receiver means little



Arthur P. Stern

more than the replacement of tubes by transistors. This is very far from the truth. Although the block diagram of a receiver will be the same whether tubes or transistors are used the design considerations related to the individual "blocks" and some "system aspects" will be quite different. Transistors have "natural" advantages and limitations which must be taken into account in order to achieve desirable over-all performance, simplicity of functions, and economical design.

Although one can state safely that transistors are here to stay, they will not stay in their present form. While certain transistor types have been developed and have proved adequate for numerous applications, new types and improved techniques for producing existing types are being introduced constantly. New semiconductor devices are being developed:

a receiver is virtually out of date before it is completed. The complete receivers should, therefore, not be considered as being necessarily the best that could be designed today. They are included merely to give an over-all picture of how the various sections discussed separately might be combined to form a working receiver.

This article is based on the work of the authors and others in the Electronics Laboratory of the General Electric Company. The transistors used were General-Electric point-contact and experimental p-n-p and n-p-n junction transistors, and the conclusions apply rigorously only to these devices, although most of them can be generalized to include many presently available transistors of other manufacturers...

(The authors then discuss the IF amplifier, RF amplifier, local oscillator, converter, second detector, agc, audio amplifier and power supply sections of their design. They conclude the article as follows:)

...Components. Throughout the preceding sections, the use of experimental General Electric transistors was assumed. The uniformity of transistors has considerably improved during the past years and with the exception of the push-pull output stage, it was possible in a given set to replace transistors by other transistors of the same type without further circuit adjustment.

It was mentioned above that the gain of transistor high-frequency stages is inferior to that of tubes. This situation will, however, certainly

improve in the not too distant future. One of the advantages of transistor receivers is miniaturization. Unfortunately, the desirable miniaturized components are not readily available for all desired purposes. Extremely small electrolytic capacitors and some audio transformers can be bought, although their present price is prohibitive. The future calls for commercial development of miniaturized high-frequency coils, transformers and capacitors. Direct operation into speakers is possible, but need will arise for the development of efficient moderately priced speakers with voice coil impedances of 100 ohms or more.

CONCLUSION

Portable transistor receivers of good quality can be built with present experimental transistors. It is expected that such receivers will appear on the market as soon as transistors and other miniaturized components are produced at a reasonable price. ♪

Acknowledgments

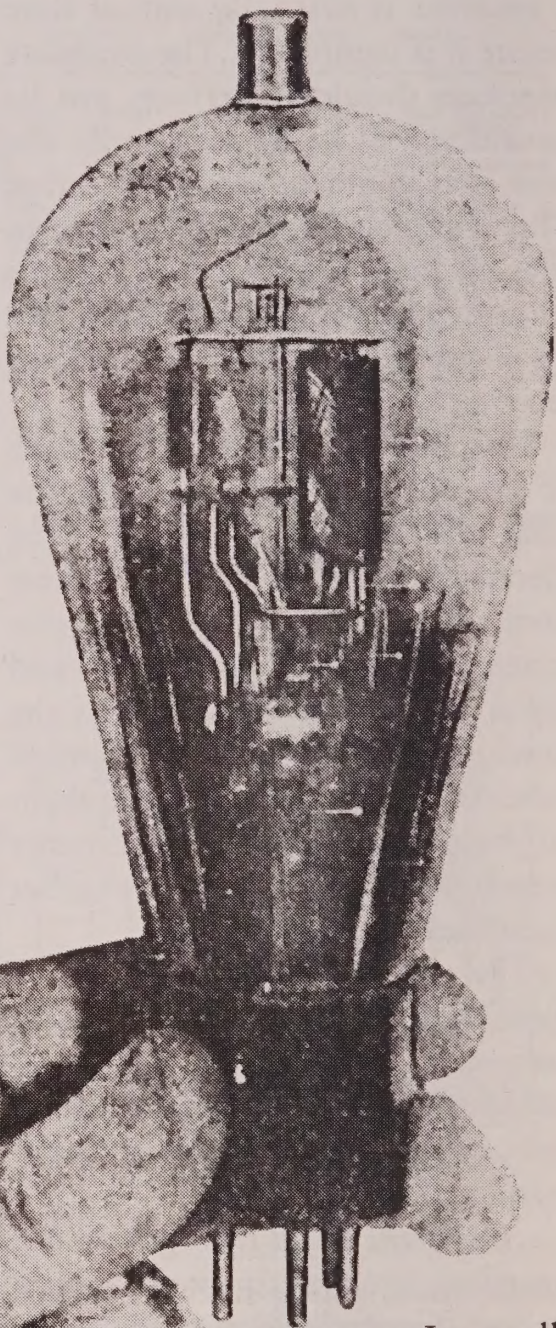
October 21, 1999 letter from Stern to Wallerstein ©2000 by IEEE. Reprinted, with permission, from *THE INSTITUTE*, volume 24, number 5, page 10, May, 2000.

The article "Transistor Broadcast Receivers" is ©2000 by IEEE. Reprinted, with permission, from *Electrical Engineering*, pages 1107-1112, December, 1954.

The Triple Twin... an Unusual Tube

by Harry Hyder

In 1932 the Cable Tube Corporation introduced the "triple twin". Its intended use was as an audio power amplifier, and Cable claimed that it would produce twice as much power as its nearest rival, the recently-introduced type 247. Cable designated the tube "Speed 295".



Internally, the tube contained two separate triode stages, connected in series. The cathode of the first stage was internally connected to the grid of the second stage. The load went to the plate of the second stage.

The plate of the first stage was directly connected to B+. Fig.1 is a diagram of an amplifier using the triple-twin.

In a conventional class A amplifier, the grid bias is

at some point between cut-off and zero bias, and the input signal is kept between these limits. If the grid is

was a standard five prong.

Most of this information was taken from an article in the March 1932

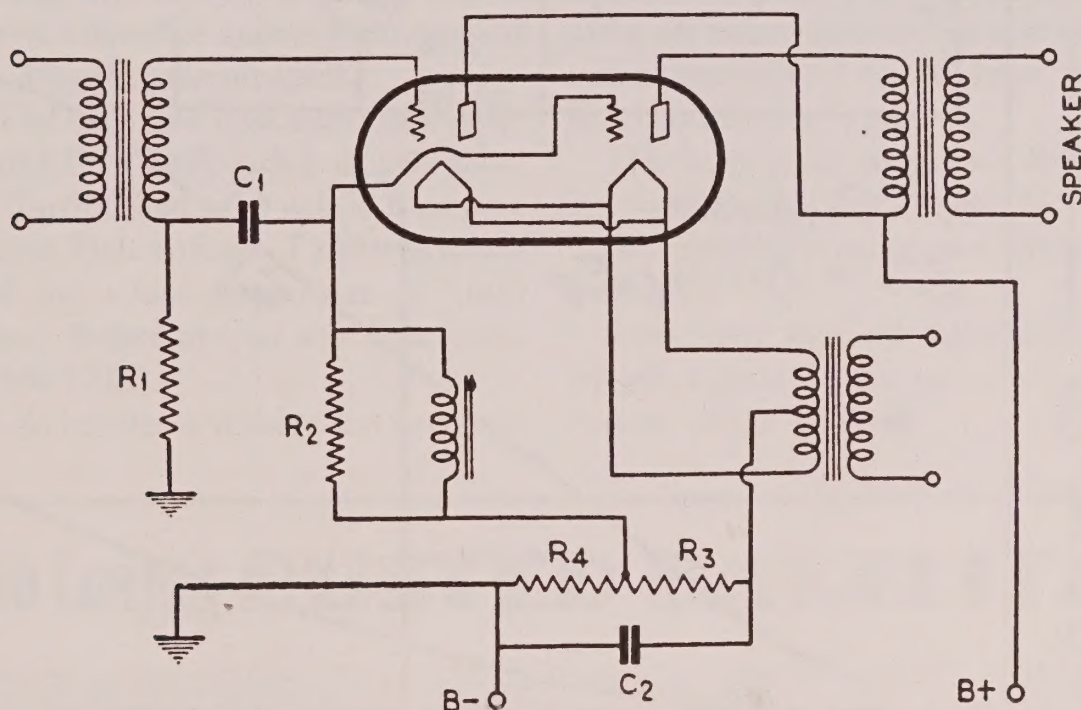


Fig. 1. Amplifier using the triple-twin.

driven into the positive region, the driving source will be loaded and severe distortion will result. As can be seen by the curves in fig. 2, the grid of the triple twin second stage is normally driven positive. Distortion is low because the driving source, the cathode of the first stage, has a very low impedance. It can be seen that the first stage is really a "cathode follower", although that term was not in use in 1932.

The Speed 295 had a 2.5 volt filament drawing four amperes. Specified plate voltage was 250 and load impedance 4,000 ohms. Maximum power output was 4.5 watts.

The tube was contained in a large spherical glass envelope with a cap for connection to the first grid. Base

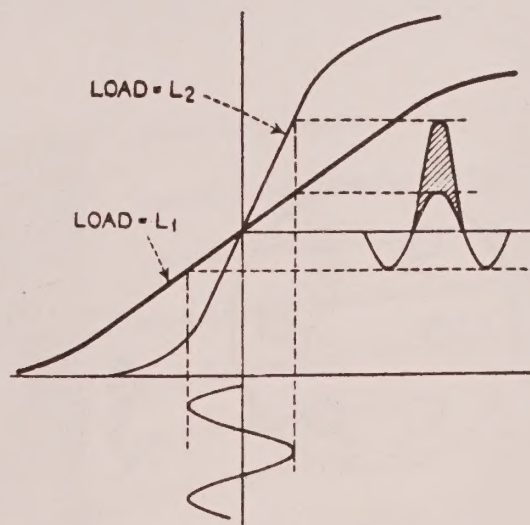


Fig. 2

issue of *Radio News*. The June issue had an article describing an audio amplifier using two Speed 295 triple twin tubes.

I have not learned anything of the further history of the tube or the Cable Tube Corporation, its maker.

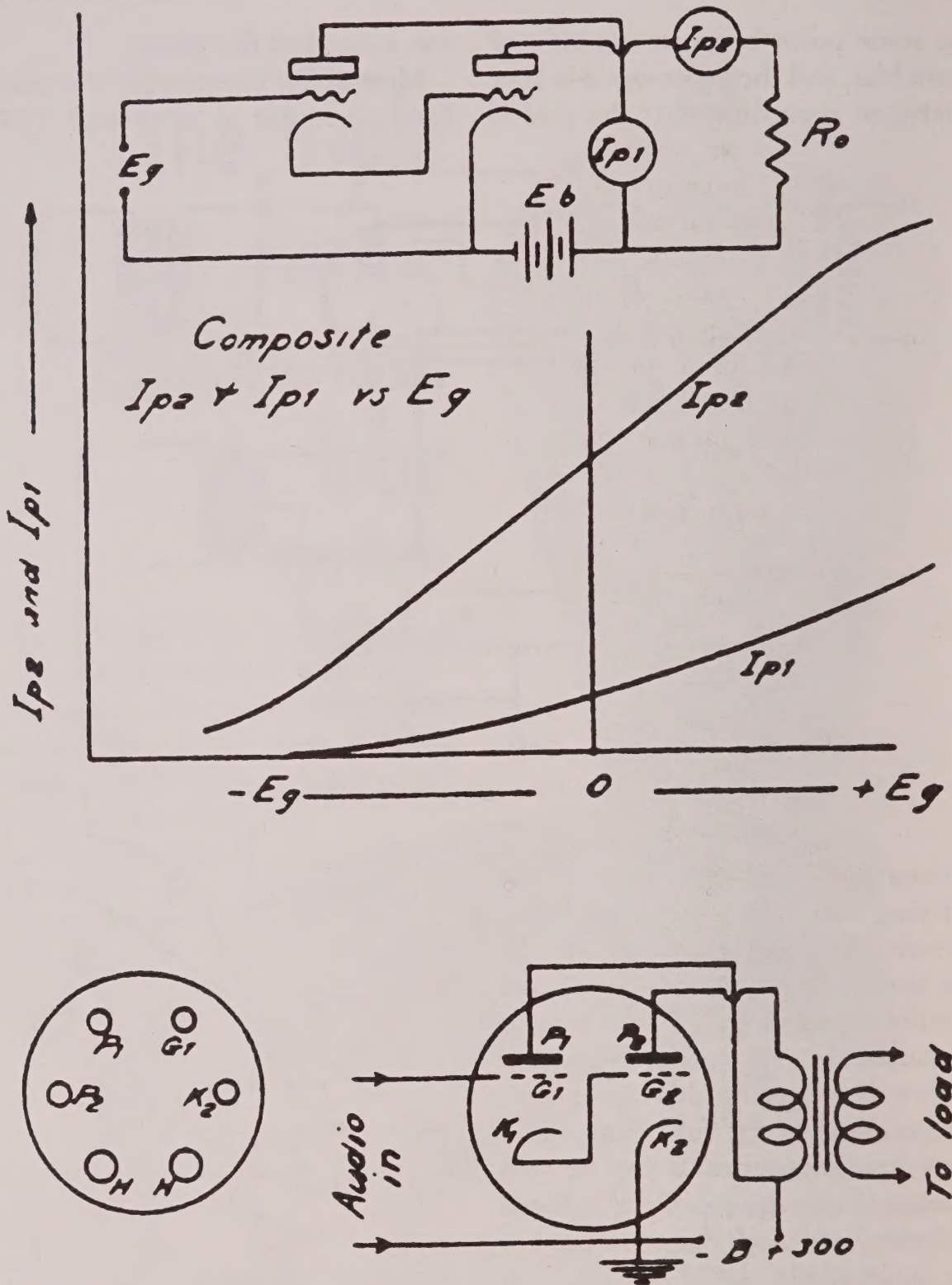


Fig. 3. Curve of 6B5 plate currents and schematic of 6B5 use in an amplifier.

However, in 1934 a tube manufacturer named Triad introduced a tube that bore a strong resemblance to the Speed 295. In fact, it was almost identical except that it had been

improved somewhat. The tube was registered with the RMA as the 6B5. Bias was not needed; the grid was at ground potential. An appealing feature of the 6B5 was that the circuit

was exceedingly simple: all an audio amplifier needed was the 6B5 and an output transformer. No resistors or capacitors were needed. Fig. 3 shows curves of tube operation and the amplifier circuit itself.

The 6B5 was contained in a standard ST-14 bulb with a six pin base.

The 6B5 had a 6.3 volt, 0.9 ampere heater. Plate voltage of 300 was specified and a load impedance of 7,000 ohms. Power output was four watts at 5% THD.

I do not know if there had been any

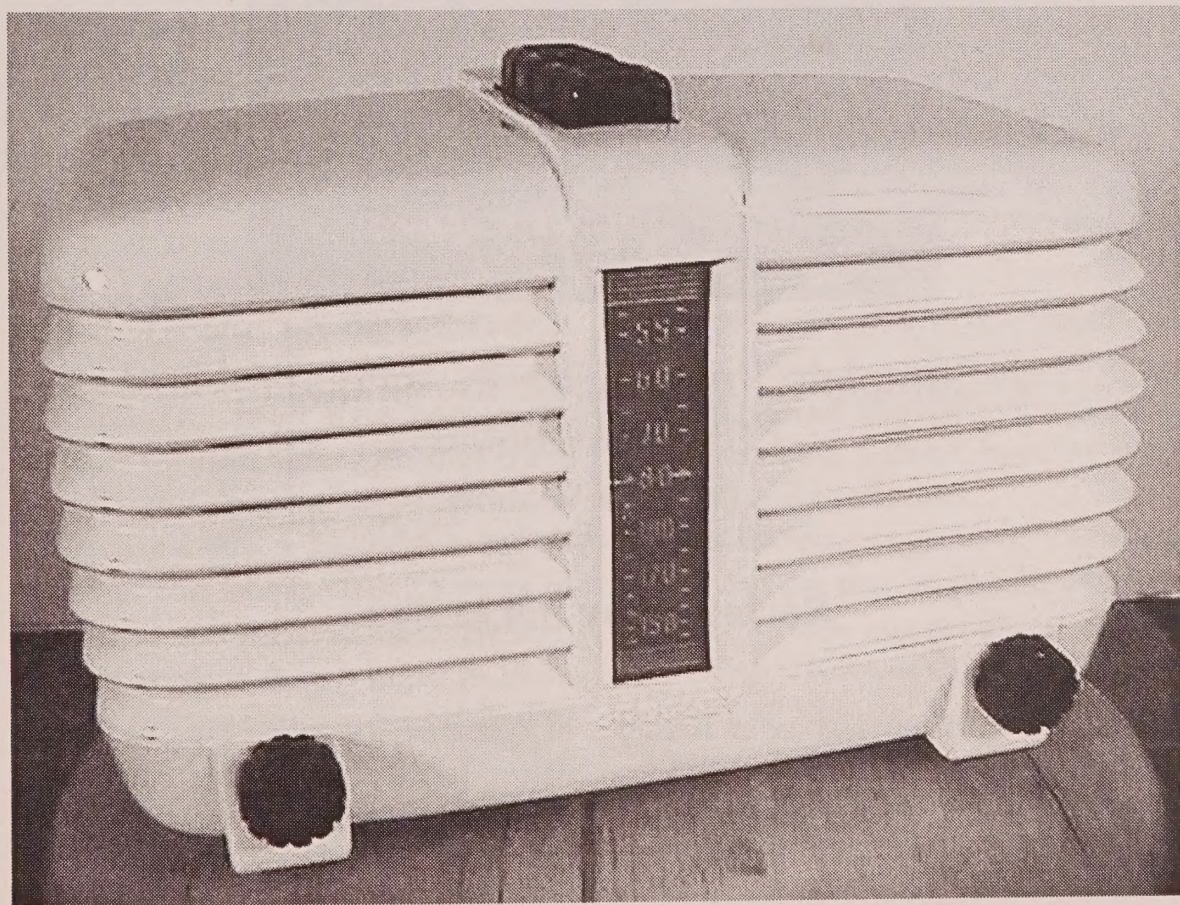
connection between Triad, manufacturer of the 6B5, and Cable Tube Corporation.

The 6B5 should have appealed to radio set manufacturers because of its circuit economy. I do not know how much utilization it got.

The ham radio magazine *R/9*, in its April 1935 issue, describes an audio amplifier using two 6B5s in push-pull.

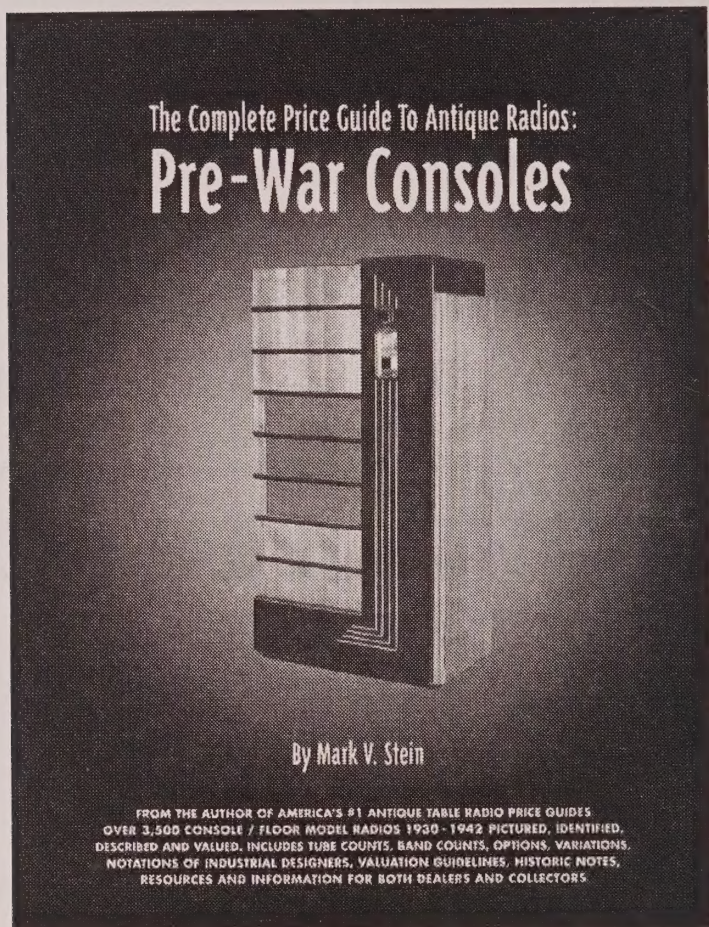
Some tube manuals list the 6N6, which seems to be an octal base version of the 6B5. ♪

No Longer **BUSTED BAKELITE**



This is the "after" shot of the radio featured in the "Busted Bakelite" article in our Spring issue. Con Morton bought it with major cracks in the top and repaired it with Bondo. Look for Con to patent the technique.

CONSOLEMANIA



The Complete Price Guide To Antique Radios: Pre-War Consoles

By Mark V. Stein
Radiomania Books, 2000

Reviewed by Bill Lettow

Do you think a *real* radio is one that must sit on the floor? Does open space in your house consist of paths between floor standing radios? Does your vehicle endure harsh solar punishment because enormous old radios occupy your garage? Or do you shun large radios because of lack

of space or tolerance on the part of other family members? Whatever your answer, you will want to get this new book by Mark V. Stein.

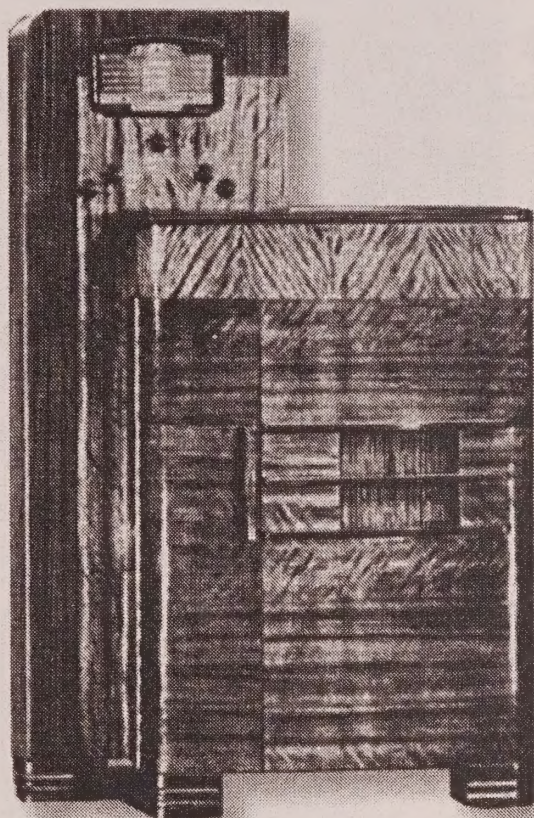
The subject is console radios and this is by far the most comprehensive collection, over 3,500 images, of consoles ever put together. I say images

because aside from the photo of a spectacular Majestic "Park Avenue" on the cover of the book, all of the other radios in the book are images taken from advertising materials: sales brochures and catalogs, magazine articles and advertising. I find these far better than photographs, which are rarely done well in this kind of book. We get to see the way the manufacturer intended the radio to be seen and sold. Some of these images are excellent examples of lithography, an artform currently on its deathbed. Inaccuracies may show up between the advertised image and the final form of the set, but fewer than if modern photos were used of incorrectly restored radios.

Stein has written a few pages of introduction of the subject; this section seems to be geared to new collectors and especially general antique dealers and pickers who probably represent the main market for this book. The book includes "current prices", of course, and the author does attempt to explain how he arrived at them. This must have been more difficult for him since consoles trade less often on eBay and at swap meets. There are truly a huge number of radios in this book; after 25 years of looking at radios I have probably seen 10% of what is shown here, so Stein and his collaborators probably had to wing it on a lot of pricing.

I imagine the book will end up considerably raising at least the asking price of consoles. Stein describes the condition, ("Very Good") on which the prices are based. This is a very high standard that very few radios

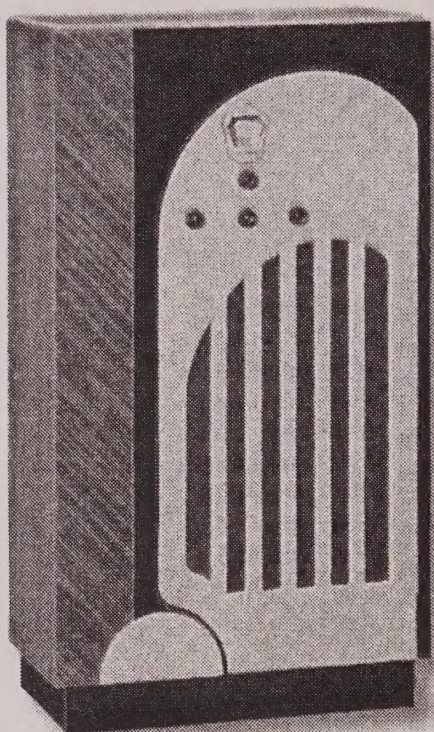
could meet. People will instead skip the small print explanation and price their radios at the "book price", regardless of condition. Having just been to the Elgin meet where an



Stromberg-Carlson "Skyscraper"

abundance of overpriced consoles hardly moved, I don't look forward to more price inflation.

How exciting page 58 of *The Flick of the Switch* was to me in the late 70s when I was just getting started in collecting. That was the page that had the Arvin "Rhythm King", "Queen", "Master", etc. I have still never seen any of those radios but the images were fantastic to contemplate. I found a lot of similar enjoyment in the Stein book. There are some fabulous sets pictured that we are never likely to see. Some are from



Midwest F-10

obscure companies ("Moderno", "Tonk"), some are incredibly rare and gorgeous, (the Stromberg-Carlson "Skyscraper"), and some are mysterious (the whole line of E.H.Scott cabinets, including several which may never have been built.) Seeing several pages of the unique Midwest consoles, sets almost never seen in Arizona, was alone worth the price of the book.

I was surprised to find almost all of my console radios in the book. This entirely random test says a lot for the admirable comprehensiveness of the book. It will surprise me if a volume 2 would even be necessary. The only radios of mine I could not find were my two Westinghouse 1931 art deco grandfather clock radios, a curious omission since they meet the conditions of a console with only the addition of a clock. Thirteen catagory-bending Radiobar sets are shown with

doors open and glassware visible.

Stein has continued his unusual use of model numbers to put the radios into some kind of order. Zenith and Philco numbers for instance, are not the same as you would see stamped on the set. For instance, he drops off the Philco year indicator (38-) and the Zenith tube and style number (12-S-). This makes it extremely difficult for a novice to match up a set with a number. Sometimes the numbering scheme causes the radios for a particular manufacturer to fall into a nice chronological order in the book, sometimes the numbers force the vintages to jump all over. In his defense, however, I give Stein a lot of credit for ferreting out and including the numbers at all, and he had to decide on *some* numbering scheme to make sense of 3,500 radios.

I wish the author had said something about his source material. Aside from a list of people who had been helpful, there is nothing about where the amazing compilation of images specifically came from. What were the publications, the sales books, the brochures used? It's time in the radio hobby that authors get more serious about and share their source material so there is a path for future authors to follow. Leaving such information out would earn one a failing grade on a high school term paper!

If you can't find room in your house or garage for another console radio at least make room on your shelf for this book. Besides being quite entertaining, it deftly meets a longstanding need in our collecting world. ♪

CLASSIFIEDS

CLASSIFIED ADS are free to members. Please - no ads over the phone. Send your ad to AARC, 2025 E. LaJolla Dr., Tempe, AZ, 85282. Specify how long you want your ad to run: one or more issues (specify), or until further notice.

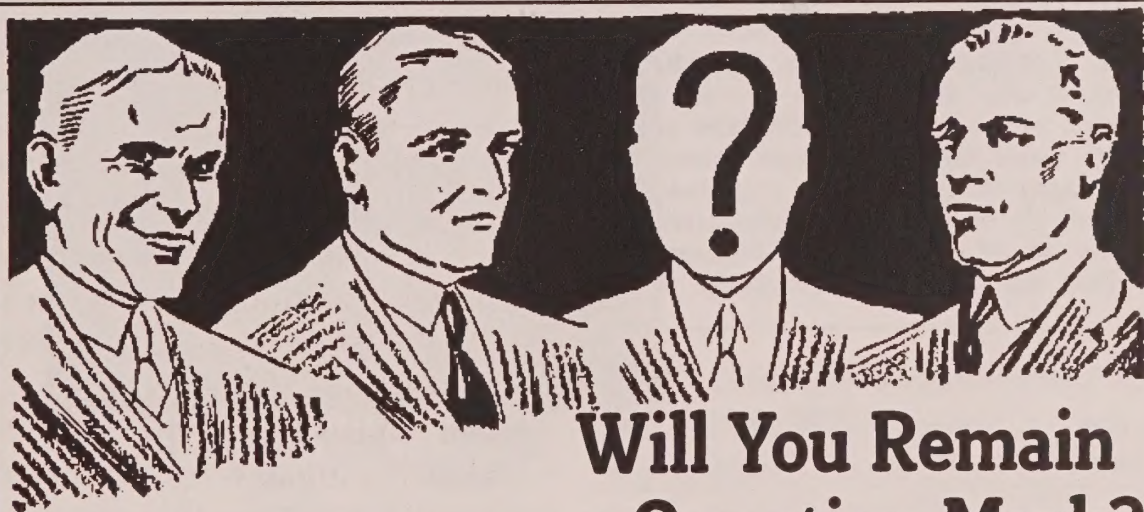
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WANTED: US-made 6SN7 and 12SX7 tubes. Will pay premium prices for NOS of certain types such as Sylvania 6SN7WGA "Chrome Dome" and Sylvania or Philips 6SN7WGTA military. Contact AL SEKELA at (480) 283-1032, or user420@uswest.net.

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Will You Remain a Question Mark?

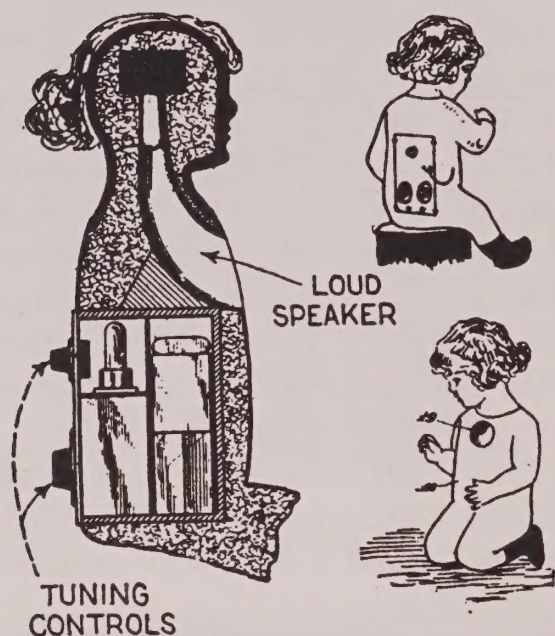
No, your face will be filled in when you write for the Radio Club News! Your club's publication needs your articles, stories, photos, technical tips and radio wisdom to fill these pages.

Write something about your favorite radio, a clever deal, a masterful restoration, a swell swap meet. Send old pictures (we won't hurt 'em) of people and their radios. We can use before and after pictures and stories to go with them.

Want to write but need an idea or an assignment - we've got plenty to go around. Even if you haven't written before, you have opinions and knowledge that other club members would enjoy. Turn that ? to a ! and contribute to the RCN today.

CLASSIFIEDS

RADIO DOLL



No. 1,565,145 issued to Beulah L. Henry was obtained to protect the design of a combination doll and complete radio set of the type shown in the above illustration. A combination of this nature should be attractive in many ways without any detrimental effect on the operation of the set.

the goods before payment. Such a deal! Contact DAN NELSON, (480)814-8827, email: djn@ieee.org

WANTED: Edison Ticker Tape machines or the square ones made by ACE Electric. Also speaker horn for model E - Edison standard phonograph. Also Ballast tubes D-110 or D-105. CECIL HOOPER, 242-4284.

ANTIQUE TUBES bought and sold. Includes brass base 201s and earlier and uncommon radio and transmitting tubes. GEORGE H. FATHAUER, 921-9961. See <http://>

members.home.net/fathauer.

INTERESTED in a model number unknown, about 1925, 2 dial, 6 or 7 tube table model? Brand might be Gearhart Schuettler, a Fresno manufacturer. If interested, call ANDY OOMS in Pine, 520-476-2164, or email at: oomspine@cybertrails.com for further info.

WANTED: "Tom Thumb" radios made by the Automatic Radio Company. All models. GEORGE A. FATHAUER, 116 N. Roosevelt, Suite 121, Chandler, AZ, 85226, 961-5176.

WANTED: Radio Premiums. Rings, paper, badges, etc. from Tom Mix, Lone Ranger, Orphan Annie, Amos 'n Andy, etc. LARRY STENCEL, 9176 N. 115th Pl., Scottsdale, 85259, 661-6722.

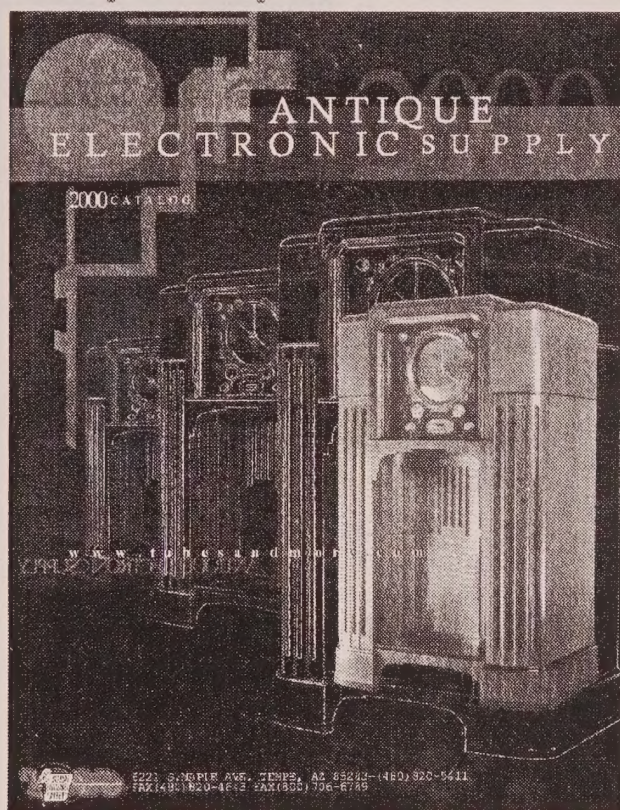
DAVE'S ANTIQUES in Tucson always has over 500 radios in stock. Buy-Sell-Trade. 3210 S. Dodge #11, Tucson, (520) 790-2618.

TUBE COLLECTOR'S ASSOCIATION: Started by dedicated collector/historians, this group is international in scope, nonprofit, and noncommercial. It addresses tubes of all vintages and types. For a membership application and sample copy of *Tube Collector*, please contact the club at PO Box 1181 Medford, OR 97501. Details are also available from AL JONES, W1ITX, (707) 464-6470 or LUDWELL SIBLEY (541) 855-5207.

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had "one of those..."

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• Literature and books on antique radios, hi-fi, communications equipment, tube data and circuit diagrams.

 one electron



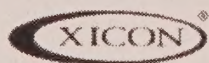
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Read what happened



to these
two men

when I said:



You Can Write for the Radio Club News!

Your club's publication needs your contributions of articles, letters, photos and other materials of interest to members. Add a new dimension to your hobby by sharing your experiences, expertise, wisdom, common sense, opinions and observations with club members and other readers.

Here are a few ideas to get you going:

Collecting:

- Your first radio
- Great and impossible finds you have made
- Tips for making finds
- Tips for new collectors*
- Great finds that turned sour
- Tips to avoid making finds that turn sour
- Interviews or visits to club members

Experiences:

- How you got started in radio
- Experiences in radio's early days
- Early Arizona radio: stations, manufacturers, stores, personalities
- Interviews of radio pioneers
- Job experiences relating to radio

Technical:

- Cabinet restoration tips*
- Chassis repair tips*
- Great and impossible restorations
- Electronics for the beginning collector*

Technical help in question and answer format*

History:

- History of a set, a company or a station
- Development of circuits, tubes or components
- History of a design trend, i.e. art deco
- Any aspect of radio in Arizona history especially wanted

Photos:

- Unusual sets
- Recent acquisitions
- Before and after shots of a restoration
- Collections or swap meets visited
- Interesting radio related places visited

Commentary:

- The state of the hobby
- Letters to the editor
- Comments about articles seen
- Comments about the Radio Club News
- Opinions about prices

Items marked * could be subjects for regular features, if you are willing to make a commitment. Submissions can be typed or on computer disk (any format is OK), or emailed. Call or write the editor:

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